

THE UTILIZATION OF BATIK PATTERN AND NATURAL DYES AS VALUATION OF THE LOCAL VALUE IN BATIK SOCIETY

PEMANFAATAN POLA BATIK DAN PEWARNA ALAMI SEBAGAI PENILAIAN NILAI LOKAL DALAM MASYARAKAT BATIK

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ABSTRACT

The global awareness in saving the environment and the appreciation towards the values of local wisdom and particular cultures opens up opportunities for the development of natural materials. Products that are considered eco-friendly for its sustainability draws interest of many consumers, one of which includes naturally dyed textile products. By conducting natural dyes in this following research, it is stated not only to be conducted by its environmental issues but also studies upon its trends and local genius. Dusun gempol, kec. Limbangan, kabupaten kendal, is a village located in the center of java among the slopes of west Gunung (mount) Ungaran. This region has varieties of potentials which are gained through aspects including natural and community resources. Both aspects are known to be active in various activities in preserving their nature and culture. There are diverse issues in improving the qualities of batik in this region. The limitation of knowledge and technology is one of the obstacles in gaining good quality materials and wide range of colors. Furthermore, there is a lack of understanding upon the material characteristics which also lead to a disadvantage. Therefore, product diversification is needed by improving the techniques in designing batik (based on local values) to gain the local's ability in producing interesting ornaments that symbolize their culture. Through this research, it is expected to stand as an asset in developing creative natural products in the hope of improving prosperity upon the region's batik crafters, as well as an alternative in solving environmental issues.

Keywords: batik, creative, local value, natural dye, eco-friendly, sustainability

ABSTRAK

Kesadaran global dalam menyelamatkan lingkungan dan apresiasi terhadap nilai-nilai kearifan lokal dan budaya tertentu membuka peluang bagi pengembangan bahan-bahan alami. Produk yang dianggap ramah lingkungan untuk keberlanjutannya menarik minat banyak konsumen, salah satunya mencakup produk tekstil dicelup secara alami. Dengan melakukan pewarna alami dalam penelitian berikut ini, dinyatakan tidak hanya untuk dilakukan oleh masalah lingkungannya tetapi juga mempelajari tren dan kejeniusan lokal. Dusun gempol, kec. Limbangan, kabupaten kendal, adalah sebuah desa yang terletak di pusat jawa di antara lereng gunung barat (gunung) Ungaran. Wilayah ini memiliki berbagai potensi yang diperoleh melalui berbagai aspek termasuk sumber daya alam dan masyarakat. Kedua aspek ini dikenal aktif dalam berbagai aktivitas dalam melestarikan alam dan budaya mereka. Ada beragam masalah dalam meningkatkan kualitas batik di wilayah ini. Keterbatasan pengetahuan dan teknologi adalah salah satu kendala dalam memperoleh bahan berkualitas baik dan berbagai warna. Selain itu, kurangnya pemahaman tentang karakteristik material juga menyebabkan kerugian. Oleh karena itu, diperlukan diversifikasi produk dengan meningkatkan teknik dalam merancang batik (berdasarkan nilai-nilai lokal) untuk mendapatkan kemampuan lokal dalam memproduksi ornamen menarik yang melambangkan budaya mereka. Melalui penelitian ini, kemampuan tersebut diharapkan dapat menjadi aset dalam mengembangkan produk-produk alami kreatif dengan harapan dapat meningkatkan kemakmuran perajin batik di daerah itu, serta alternatif dalam memecahkan masalah lingkungan.

Kata Kunci: batik, kreatif, nilai lokal, pewarna alami, ramah lingkungan, keberlanjutan

INTRODUCTION

The increasing global awareness of the importance of saving the environment, as well as a great appreciation of the values of local wisdom and the culture of the society, has opened up opportunities for the development of the use of natural materials. Among the

products considered environmentally friendly, with a good and sustainable design, that have attracted many consumers are textile products with natural dyes. This is a very positive opportunity, deemed important to be addressed in the framework of nature and culture conservation of the nation as

well as an effort to increase the revenues of the business of textile, especially for entrepreneurs of small and medium enterprises. Setting natural dyes as the material object of the study raises the issue of not only environmentally friendly products but also local genius problems and trends of material

One of the areas that have the potentials mentioned above is Dusun Gempol, in Kecamatan Limbangan, Kabupaten Kendal. It is an area located 35 km from the city of Semarang, Central Java province, at 600 DPL altitude, on the western slopes of Mount Ungaran. This area has various potentials in its natural and human resources who actively undertake various activities related to nature conservation and the development of batik culture although the area was not previously a batik producing region. There was no tradition of batik, but the people have transformed themselves into learning to make batik. The location of the village is directly adjacent to a forest and therefore most of the residents make a living from the forest.

The fertile condition of the nature is suitable for planting various types of natural dye plants. The local people have made their efforts to plant indigo (*Indigofera tinctoria*). The plant is one type of color-producing plants for dyeing cloth, resulting a good quality of the color of blue. This plant is very suitable for use as a dye for batik. In addition to this type of plant, some other plants are very easy to find in the area, such as mahogany, avocado, galinggem and areca nut. Nurseries and cultivation of these natural dye plants have started in August 2013 until today. This cultivation activity becomes important as it also acts as an effort to protect the condition of the land around the slopes of Ungaran.

There are various problems related to the improvement of the quality

of batik in the area, including:

Limited knowledge and experience in the processing of natural materials to produce diverse color ranges of good quality Limited understanding of the characteristics of materials and requirements of a quality product, a good design preferred by a wide market.

This needs to be supported by those who have competence in these areas, and it is therefore necessary to diversify the products by introducing various opportunities for batik (based on local values) to the local people who, in turn, will produce various interesting ornaments characterized by their local culture. In addition, it is deemed important to introduce means of optimization of the use of natural dyes to produce a more complex color range of good quality. Both are then applied to creative and competitive textile products on the market.

Use of Natural Dyes for Batik product in Indonesia

Indonesia is known for its abundant natural wealth and diverse textile traditions. One of the tradition-based textile materials is fabric with natural dyes. In the past, these materials served as the main elements of the Indonesian traditional textiles. The specific background of the natural conditions and unique cultural traditions of the local regions have greatly affected the creative process of the local textile craftsmen, as well as the existence of textile works. Another influence came from the availability of the natural resources, such as the abundance of tropical plants with textile fibers and plant species containing certain pigments or coloring matters that can be used as textile dyeing materials (Widiawati, 2013). Traditional textiles such as batik

and woven materials use a variety of natural dyes usually taken from the environment around the textile producers hence the colors typical of certain areas (Anas et al, 1995).

With the discovery of synthetic dyes, knowledge about natural dyes diminished and is abandoned. Almost all textile industries in the country, even traditional textiles, use synthetic dyes of various types, despite the current reemerging optimism use of natural dyes for the Indonesian textiles. This phenomenon is growing in line with the issues concerning environmental concerns, a back to nature lifestyle that is getting more and more popular, offsetting the spread of global warming issues. The awareness of the use of environmentally friendly products increases leading to the emergence of products which carries the concept of sustainable design such as green product and eco fashion (Widiawati, 2013).

Discussions about the possible reuse of natural dyes have increased recently. Reuse of natural dyes as substitution for artificial or synthetic dyes shows an increase in probability. Efforts to encourage the use of natural dyes will require the socialization of quite diverse and complex supporting activities (Anas, 2013).

The use of natural dyes in small industries is generally still constrained in terms of raw material procurement, natural coloring technology, and design, which ultimately accumulate and impact on the quality of the products. Thus, in line with the above-mentioned, this research becomes highly relevant to be carried out in areas that have human resources in areas rich of traditional cloth-making culture, in particular batik, as well as the potential of the surrounding natural resources, which are the source of sustainable materials of natural dyes.

Research Objectives

This study aims to optimize the potentials of local regions in providing added values to their batik products. It is therefore expected to become the identity of the superior product of the regions. This effort has been done by combining three elements, namely: a. Local natural resources and b. Human resources, as well as local cultural characteristics. For that reason, the implementation has been performed through the empowerment of local communities and the utilization of various natural products to be used as raw materials for the manufacture of batik itself.

This activity was conducted at the industry of SME scale, implemented through a cooper-ative system that aims to help the community to understand how to make good batik products, with the application of technology in accordance with their potentials. The research area is expected to become an independent area that is able to actively manage its natural and human potentials to provide economic benefits for both the individuals and the local community.

Research Benefits

- a) Solution to the problem of design development through diversification of designs that include decoration, composition, and color.
- b) Improved quality of dyeing through simple techniques that are environmentally friendly, by raising the potentials of local natural resources.
- c) Batik community being motivated to develop ideas and apply them to more diverse textile products through creative explorations.
- d) Expansion and acceleration of economic development.

METHOD

In this study the method used is Inspective Intuition, i.e., the research was done by direct involvement in the object and the problem being studied. The implementation of the research was systematically done as follows:

Preliminary

- a) Data and information collection from various sources, both the literature sources and the target areas, in the form of observation and direct interviews with the target community, batik business actors around the study area as a comparative study, and by searching for sources of natural dyes in the local area.
- b) Data Analysis (Local Potential Analysis); analyzing and formulating data obtained into information that can be used as a solution to the problem, including:
 - Strategies in interacting with local communities,
 - Recognizing the natural and environmental conditions, culture, and the extent of batik community skills in the target area
 - Looking for alternative solutions to the problems encountered in the

community, especially in terms of natural dyeing and product development.

Development

- a) Conducting experimentation of natural dyeing on materials found in the local area, testing, and evaluating the design of batik production system at an early stage
- b) Product development which includes the concept of function, wearers, market segment, and the final product
- c) Batik and natural coloring workshop to increase knowledge and skills of the batik community, periodically and continuously.

Prototyping

- a) Preparing technical specifications of design as a reference for batik community
- b) Preparing a prototype and design use of production scale
- c) Finishing

Based on the data obtained through a field survey it was found that there are women in the area who have actively performed the process of making batik through print technique. There is one prominent figure who mobilizes the community, aKesumba



Figure 1 Kesumba/Galinggem (*Bixa orellana* Linn), cultivated by the inhabitants of Dusun Gempol as decora-tive plants, protection plants around the yards of their houses (dok: Widiawati, 2016)

(*Bixa orellana* Linn) is very easy to find in the area around the village Dusun Gempol because this plant has been deliberately grown by the local community as ornamental plants that also serve as a protective plant at the foot of mount Ungaran. The usable parts of this plant are the seeds and skin of the fruit. This plant is also known by the name kesumba keling, galinggem, paparada, or galuga. Harvesting of seeds from this plant will not interfere with the survival of the plant, hence its sustainability is maintained.

Seeds of kesumba, which are also known as annatto, can be utilized

as a dye, because it contains a bright red substance. In addition to containing bixin as the main component, Kesumba seeds also contain norbixin. Bixin soluble in organic solvents can produce the colors from yellow to red. Results of WHO toxicology analysis show that this dye is safe to eat and does not cause toxicity for the body. This natural dye can be used as a red dye, for example for lipstick, and can also produce a yellow color like butter and cheese (Suryowinoto, 1997). In addition, the seeds can also be used to dye wool, cotton, silk fibers, with colors ranging from orange to yellow, depending on the process they have undergone and the mixture for strengthening the



Figure 2 Avocado (*Persea americana* miller) can be found in abundance in Dusun Gempol, an area well-known as a producer of avocado of excellent variety (dok: Widiawati, 2016)



Figure 3 Mahogany tree barks (*Swietenia mahogany*), found in abundance around the village Dusun Gempol, in the form of furniture waste prior to utilization (dok: Widiawati, 2016)

materials, such as sodium carbonate, cream of tar-tar, citric acid (Dean, 2009).

Avocado (*Persea americana* miller) can be used as a source of natural dyes, especially its leaves, fruit skin and fruit seeds. Avocado is known as the superior product of the village Dusun Gempol region with excellent quality.

Avocado leaves contain flavonoid, tannins and quinones compounds. Tanin, as a dye, produces brown or brownish colors (Prayitno et al, 2003). The dye from the avocado leaf and the skin of the fruit can be used on cotton and silk fabrics, with good dyeing qualities, based on the results of testing



Figure 4 *Indigofera tinctoria* cultivation in Gempol Village Ngesrep Balong Village, Kec.Limbangan, Kab. Kendal, Prov. Central Java (doc.Widiawati, 2016)



Figure 5 Pinang (*Areca catechu* L.) is one of the palm trees that can produce red color, many found growing wild around Dusun Gempol (doc: Widiawati, 2016)



Figure 6 Lerak (*Sapindus rarak*) can be found in the forest around Dusun Gempol area, mature enough fruit can be used as for washing batik or other cloths to keep the color quality (photo: Widiawati, 2016)

the color fastness to washing, as well as hot ironing.

Mahogany (*Swietenia mahogany*), a part of the bark of this plant, especially of the old wood, can be used as a coloring material that produces a brown color. It is often found in the form of waste fragments from the furniture industry in the local area.

The chemical content of mahogany skin is triterpenoid, limonoid, flavonoid, aponin, terpenoids, alkaloids, and tannins. The contents used for dyes are tannins and flavonoid. Tannin serves as a vegetable tanner on the skin and also as a dye (Prayitno, 2013). The resulting color depends on the process and the substances added to the dye extract.

Indigo plants, also known as *nilo* or *tom* (Javanese), *tarum* (Sunda), *taum* (Bali and Lombok), can produce blue colors by varying degrees of concentration depending on the process. In the village Dusun Gempol this plant has begun to be cultivated and made as paste that is ready to be used as a natural dye, though still in a limited scale.

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Betel nuts contain polyphenol compounds, namely flavonoids and tannins (Amudhan et al., 2012). This is a compound that produces color in the areca nut. The dye of the areca nut can be obtained through the extraction process, made into powder through drying, using a spray drier (Yernisa, 2013). The resulting colors are those of deep red wine (Heyne, 1987), reddish brown, or light and dark brown, highly dependent on the process

of workmanship and mordant added to the solution of the extract.

In addition to the presence of plants for natural dyes, in the forest not far from the village Gempol, *Lerak* tree (*Sapindus rarak*) can still be found; this plant is known for the use of its seeds that can be used as a traditional washing material. *Lerak* seeds contain saponins that produce foam and serve as an antiseptic as well as a washing agent. *Lerak* is suitable for washing batik or cloth using natural dyes, because it can maintain the color quality of the fabrics.

RESULTS AND DISCUSSION

Data Analysis on Potentials of the Communities and their Local Environment

Data analysis performed through social interactions and recognition of the conditions of nature and environment, culture, and also by recognizing the ability of batik skill of the target community known, various potentials of the area, and its problems, have been found out. Through talks and observations on the batik products made by the women who would follow the workshop of natural dye batik, various issues were found, such as production capacity, tidiness, and skills of the participants. This serves as an early foothold to determine the extent for improvements as required by the participants of the workshop to be carried out later. Generally, they make batik using print technique. The participants have already had basic skills for using canting to make batik, but in general the quality of the lines on the streaks is still very rough (figure 7 and 8).

Development

To produce alternative solutions related to the expected results, several stages of work-shops were conducted simultaneously, namely:

- a. Batik tulis workshop, using hand-drawn technique
- b. The natural dyeing workshop, using local natural dyes

Batik Tulis Workshop, Using Hand-Drawn Technique

Workshop using batik tulis technique to improve the quality of the participants' skills in performing the making of batik using canting. This is performed periodically and continually to obtain optimum results (figure 9, 10, 11, & 12).

The Natural Dyeing Workshop Using Local Natural Dyes

This was performed in order to transfer knowledge, both materials and principles, about dipping technique using natural dyes, as well as the processes

to produce colors of optimum quality (figure 13, 14, 15, 16, & 17).

CONCLUSION

Of the various types of plants found in the study area there are several types of plants that can produce the colors optimally with a particular treatment, namely:

Bixa orellana, which can produce a range of yellow to dark orange colors depending on the type of mordant used and the process of fixation performed. The bark of mahogany (*Swietenia mahagoni*), which can produce a range of beige to dark reddish brown colors, depending on the type of mordant used and the fixation process performed. Tarum (*Indigofera tinctoria*), which can produce a range of colors of blue with different color intensities depending on



Figure 7 The process of observation and evaluation on batik produced by the women participating in the workshop
(doc: Widiawati, 2016)



Figure 8 Some batik works made by Ms. Nur, Ms. Tri, and Ms. Darni, using the technique of print and synthetic dyes
(doc: Ciptandi, 2016)



Figure 9 Training started by seeking for several types of plants available around the participants' residential areas as the source of initial ideas
(doc: Ciptandi, 2016)



Figure 10 Workshop for making batik using batik tulis technique/ hand-drawn technique; the women participating in the workshop had another training from the beginning to train their skill in drawing motifs, followed by the next stage, i.e. using canting for drawing motifs
(doc: Widiawati, 2016)



Figure 11 Results of producing batik in the initial stage of workshop, the training process of intensive use of canting to improve the quality of line tidiness and motif composition
(doc: Widiawati, 2016)



Figure 11 & 12 The process of making batik in the workshop of later stage; the results have been significantly improved in term of line complexity and tidiness
(Doc: Setyo 2017)



Figure 13 Workshop about dipping technique using local natural dyes kesumba/Bixa orellana
(doc:Widiawati, 2016)



Figure 14 Results of experimental dyeing using natural dye kesumba (*Bixa orellana*), tarum (*Indigofera tinctoria*), mahogany bark (*Swietenia mahogany*),
(doc: Widiawati, 2016)



Figure 15 Results of experimental dyeing using natural dyes of various methods and natural color binding/ mordant (doc: Widiawati,2016)



Figure 16 The process of dyeing fabric already worked on using canting and natural dyes; several optimum color ranges were selected based on the results of experiments performed, such as by using Tarum/Indigofera tinctoria (Doc: Setyo, 2017)



Figure 17 One of the batik tulis shawls, produced in the workshop, titled: "Kembang Kopi" using ATBM silk woven material and Indigofera natural dye, exhibited at the International 2017 Textile Costume Culture Congress ITCC, "A Textile Revolution: People, Craftmanship, Innovation, And Trends", Bandung Indonesia 7-8 September 2017, East Hall, ITB, Ars Textrina United Kingdom, Craft Study Program, FSRD – ITB (Doc:Widiawati,2017)

how many times the dyeing is performed.

Problem solving and handling of targeted communities require intensive/periodic assistance and meetings. Cultivating human resources who have skills in batik requires persistence and accuracy, and it can hardly be done only in several meetings. Practicing and determination to perform dyeing experiments using local natural dyes as well as the exploration of decoration is one of the keys to success, because the distinctive character of a batik product can be sharpened through these.

There are various local potentials in the target area in the form of various types of plants that can be utilized further as natural dyes. This may invite responses for optimization, through wise ways and by considering sustainability. It is therefore essential that further research be conducted to make the best of the value of the plants utility hence the target community obtains the benefits and enrich studies among academic community.

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